GARDEN AND FOREST.

PUBLISHED WEEKLY BY

THE GARDEN AND FOREST PUBLISHING CO.

OFFICE: TRIBUNE BUILDING, NEW YORK.

Conducted by . . . . . Professor C. S. SARGENT.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE AT NEW YORK, N. Y.

NEW YORK, WEDNESDAY, NOVEMBER 22, 1893.

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The Desolation of Central Tunis: Was it Caused by the Destruction of Forests?

THAT portion of Tunis which is included between the two branches of the great south Algerian mountain-range, which cross it from west to east, is a high arid plateau—a barren and inhospitable country, which affords meagre pasturage to a few miserable, half-starved flocks. That this region once supported a large and prosperous population, the ruins of cities like those of El Djem, the ancient Thysdrus, the principal city of Byzacene, with its noble amphitheatre, of Cillium and of Thelepte, with their populous suburbs, bear abundant witness. In this region, where hundreds of thousands of human beings once lived in plenty, now a few hundred shepherds are barely able to keep themselves from starving. The remarkable change in the character of this region has been explained by the nature of the Arabian occupation, which, in destroying the forests which have been supposed to have covered it at one time, prepared the way for the erosion of the soil and produced a radical change of climate. This has been the accepted view of travelers and historians who have discussed the physical condition of Tunis. Monsieur Paul Bourde, in a learned and valuable report upon the cultivation of the Olive-tree in Tunis, which has lately appeared, takes a different view, however, and his conclusions are not only of great historical interest, but have a direct bearing upon the future of other warm arid regions like many parts of the Mediterranean basin, southern California, Lower California and northern Mexico. Here are some of his facts and inferences:

So far as concerns the forests, the fact appears to have escaped general attention that Tunis possesses only two trees of large size—the Cork Oak and the Zeen Oak—and that these trees, excessively particular as to the composition of the soil in which they grow, flourish in the sands of the north, but do not grow at all on the limestone mountains of the central and southern portions of the country. In these are found only species of small size, the Evergreen Oak, the Aleppo Pine, the Thuya and the Phœnician Juniper, which are rather large shrubs than trees, rarely growing to a greater height than twenty feet and rarely producing trunks. Unless we can suppose in ancient times the existence of other species of trees, since disappeared, it must be acknowledged that there has never been in the country high, continuous forests. With regard to water-supply, the irrigation works, still to be seen in most ruined cities, indicate what part they played in the ancient civilization of the country. At Thelepte, at Cillium and at Suffetula, for example, the capacity of these canals was calculated for the volumes of water which are practically the same as those which the actual springs yield at present. When springs have decreased in volume or disappeared it is because they had become choked up, as has been seen at Gafsa and at Ferriana, where they have been restored. Water is always in the ground, and there is every reason to suppose that there is no appreciable difference between the quantity of rain which fell formerly and that which falls to-day over this region.

Monsieur Bourde has reached the conclusion, and his readers, after they have examined the facts which he has collected, will be inclined to agree with him, that there has been no notable change of climate in Tunis since the time of the Romans. To the proof of direct observations he joins the testimony of Latin and Arab authors. The description which Sallust gives of the country between Thula and Gafsa is as true to-day as when it was written. The country is, as in the time of Sallust, dry, uninhabited and horrible. Nevertheless, between the desert traversed by Marius and the desert of to-day there has existed a period of successful cultivation and of great prosperity. In the eleventh century, El Hekir saw two hundred flourishing villages in the neighborhood of Gafsa. What is the secret of a country uninhabited in the time of Sallust, covered with cities and villages at the time of the Arab invasion, and to-day again uncultivated and uninhabited? Monsieur Bourde is the first to answer these questions and has shown that this country, so barren in appearance, is eminently fit for the cultivation of fruit-trees of the warm temperate zone—the Olive, the Grape, the Fig and the Almond. In no other part of the world does the Olive so flourish or produce such crops. The soil being very loose, and the surface drying rapidly, it cannot support herbage, and is not suitable for the cultivation of annual crops, although the rain-water is stored up in the subsoil, which is always cool and moist. If cereals are sown in this soil, four years out of five they will not find in the upper layer sufficient humidity to insure their ripening, while trees will send their roots down to reach the waters of the subsoil and flourish. The Romans seem to have understood this, and here is the secret of their colonization of this country—a secret which, up to this time, the savants, who have studied the matter, apparently have not hit upon. Monsieur Bourde states the matter tersely:

The cause of the contrast of extreme prosperity and of extreme misery which is found in the history of such a country is not doubtful. It is not necessary, in order to explain it, to suppose modifications of soil and climate—the truth is simpler. The country is exceptionally favorable for one kind of culture and is not at all suited to another. Before the Roman invasion this cultivation was unknown and the country a desert. The Romans introduced it toward the end of the first century, and became rich; the Arabs destroyed it in the eleventh century, and the country has become a desert again. The truth of this statement is so striking, when the territory itself is examined, that it is possible to fix approximately in figures the results of the Roman colonization and the immensity of the catastrophe which has destroyed them. In central Tunis there are about 3,200,000 acres suitable for the cultivation of fruit-trees. Abandoned to pasturage, this land is worth four francs an acre; planted in Olive-trees, it is worth at the very lowest estimate three hundred and twenty francs an acre. So it would appear that the Roman colonization had improved the country from a condition where the land was worth about thirteen millions of francs to one where it was worth more than a thousand million francs, and that the Arab invasion has reduced it again to its former misery and poverty.

The condition of the country verifies the statement. From El Djem to L'Oued Rann, in a distance of not more than fifty miles, may be seen on every side the indications of the existence of an ancient forest of Olive-trees. Trees sometimes gathered in little groups, sometimes scattered one by one, have survived neglect and systematic destruction. Deprived of all care since the Arab invasion, disfigured by the growth of parasites, mutilated by the teeth of animals, they still live, and in rainy seasons produce fruit. After eight centuries of neglect, the crop in 1890, a year of heavy rainfall, was sold for one hundred and seventy thousand francs. These trees are not wild Olive-trees, Zeboudj, as the Arabs say, but Zeitoun—that is, Olive-trees of cultivated varieties; they belong to plantations which evidently once formed a continuous forest in this region. The ruins of the oil-mills show that the Roman forest must have continued almost indefinitely. The stone bowls, where the pulp of the olives was removed, the stone uprights between which the bar of the press was inserted, and the stone tables upon which the olives were pressed, all remain to testify the importance of the oil industry of this region; and, finding these presses so near together, Monsieur Bourde was impressed with the fact that the cultivation of the Olive was the principal industry of the region of whose appearance in the time of the Romans it is easy to form an idea by comparing it with the orchard-covered Sahel of Soussa as it looks to-day.

The error which has, no doubt, given rise to the myth that Tunis was formerly a well-wooded country, is due to the fact that there has long existed a misunderstanding as to the word forest, as used by Arab historians. When the first Musselmen arrived in northern Africa they found a country so green that they called it El Khadra, "The Green." All the historians of the invasion—Ibn Assam, Ibn Chabat, En Noueri and El Kairouassi—declare that it was possible to travel from Tripoli to Tangiers under the shade of trees through an unbroken line of villages. The country was covered with a forest at that time, but it was not a forest of uncultivated trees. Sallust had not seen these forests; they had been planted two centuries after his time by the hand of man; they were orchards of fruit-trees. Planted by man, they were destroyed by man also. The Arab shepherds, who had taken possession of Tunis, destroyed the orchards to procure the pasturage which they needed for their flocks. This destruction, begun in the seventh century, was finished in the thirteenth. The documents brought together by Monsieur Bourde allow us to follow its progress from century to century. The substitution of a nomad and pastoral population for a stationary and fruit-growing population was only effected at the cost of immense disasters. The conclusion reached by the author of the report is that to restore the ancient prosperity to central Tunis the administration of the protectorate need only do what succeeded so well with the Romans—plant Olive-trees. Whether this operation can be made personally profitable to the settlers who undertake it, will depend, of course, upon the amount of skill and intelligence they are able to devote to it. The demands for the product of the Olive-tree are fast increasing, and its cultivation under the most favorable conditions must always remain profitable.

Monsieur Bourde's report, which has been printed in pamphlet form by order of the commanding officer of the French protectorate in Tunis, for free distribution among all persons interested in the subject, contains also estimates of the profits of Olive-tree plantations and directions for making them. These, however, will be of little practical value in America, where all conditions of labor are entirely different from those which prevail in the French colonies in Africa, and it is in its general conclusion and historical studies that this remarkable paper commends itself to American readers, who will find here, perhaps, the true solution of the problem of the most profitable employment of some thousands of square miles of their country.

Fences.—I.

THE word fence, in its broad significance as a term for protecting enclosures in general, whether made of brick or stone, of wood or metal, or closely set plants, embraces a great variety of forms. In most European countries one or two kinds of fences are almost exclusively used: in England, for instance, we perpetually see hedges and red brick walls, in Italy stuccoed and tile-capped walls of brick or rubble, and in the suburbs of German towns tall iron railings borne on stone plinths and supported by stone posts. But, with the exception of the tile-capped stuccoed wall, almost every foreign form of fence has been imitated here, while many new types have originated in consequence of the cheapness of wood and the profusion of stone in certain sections.

But the variety of expedient at the command of the American builders has not yet resulted in diversity of beauty. Indeed, less attention is given to the appearance of any other surroundings of country homes. Even when protecting a luxurious surburban villa or a stately country house, an American fence seldom excites admiration; usually its owner is content if it does not actually offend the eye; and in many cases it does offend every cultivated eye.

The first sin in the average American fence is that of intrinsic ugliness. Nothing could be worse, for instance, than most of the iron fences in our suburban districts and villa colonies. This is not because our artisans cannot produce good work in metal. Their skill has so greatly improved during recent years that they can now rival the best products of the old French and German forgers. But only the very rich can command their highest skill, and only when special designs are prepared by an architect. Some of the designs kept in stock by metal-working firms show improvement; yet a careful search through many illustrated catalogues shows only a few excellent fence-patterns amid many scores—varying from very simple to very elaborate—which are distinctly bad. Better fence-patterns would be at the client's service if he were more apt to know the difference between good and poor. But too often he wants elaborateness without being willing to pay for it, and thus accepts an imitation of a wrought-iron fence coarsely executed in cast-iron. He should realize that wrought-iron work, unless very simple, must be expensive, and that its effect cannot rightly be reproduced in cast-iron. On the other hand, if rightly designed, a severely plain wrought-iron fence, or even a simple one of cast-iron, need not be offensive, and the dignity and effectiveness of the plainest line of iron-pickets may be greatly increased if it is supported by well-built plinths of brick or stone. But one who does not want to buy showiness at an unduly small price is prone to fall into the opposite extreme and think that the cheapest possible fence will be good enough. The introduction of such economical expedients for fencing as gas-pipe and corrugated galvanized wire has greatly injured the beauty of countless suburban gardens and country places whose other features reveal no similar wish to make shift with the cheapest thing that the market affords.

In New England, loose stones and surface ledges or large boulders, which can be cheaply quarried, are so plentiful that stone-walls are more common than fences of any other kind, the mere need that the soil shall be freed from these encumbrances often dictating that they shall be built where no fence at all is really required. The forms they assume, according to the form of the boulders and the care of the builders; but collectively they give a landscape great picturesqueness and a certain rustic dignity, as we realize if we compare any typical New England scene with a stretch of Virginian country, bisected by "snake" fences of wood. And each type has a beauty of its own appropriate to special situations. Even the roughest wall of small round stones gives all needful protection to pastures and outlying fields, while it blends better than would a more architectural wall with the occasional Pine-tree or

Wild Cherry which overhangs it, the frequent clumps of shrubs which spring up beside it, the vines which clamber over it, and the tufts of Golden-rod and Aster which gather close against its base. And, on the other hand, a well-laid wall of squared, but unmortared, stones is sufficiently refined and architectural to serve with appropriateness anywhere except in immediate contact with an elaborate house of stone or brick.

But, unfortunately, many New Englanders, who ought to have better taste, try to "improve" upon the stone-walls of their forefathers. Where no mortar is needed, either for stability or for appropriateness of effect, they often take pains to use it. Here we see a wall of small round boulders between which great streams of a black pitchy substance have been poured, and there a wall of irregularly shaped stones, where unity of color and simplicity of effect have been destroyed by seams of red mortar. Worse even than the effects thus produced is the effect of a low wall crowned by a sort of cheval-de-frise of jagged stones, set upon end in a bed of mortar as bits of broken bottles are put upon city walls where cats are numerous. The uselessness of such a crest is evident when a wall is so low that any man or boy can easily leap over it; and its ugliness can hardly be expressed in words. Another unfortunate innovation is the use of great round cairns of stones as finishing-posts in the stead of the single great upright stones which our forefathers chose for this purpose. Such cairns are very ugly, especially if they are filled in with earth and planted on top with garden-flowers. Nor are they fortunate in expression even apart from their intrinsic ugliness; for the end of a wall should look as though it were supported by something stronger than itself, not as though it had weakly coiled around upon itself. And when a gate is attached to these unfortunate heaps of stone, of course their effect is doubly inappropriate, doubly distressing.

It seems strange that, in sight of the excellent examples of natural, simple, and, therefore, artistic ways of wall-building which every New England village affords, such vulgar vagaries should apparently be growing in favor; and stranger still that, not the inexperienced villager, but the traveled summer resident should most often be responsible for their introduction.

Is the Woodpecker Useful?

TO one who, in his strolls through the woods, at all seasons of the year, keeps his ears as well as his eyes open, the hammering of the Woodpecker is not an unfamiliar sound. The rapid succession of sharp blows resembles a drumming rather than a hammering, and if the sound of this drumming be followed up, one can generally see, on some dead branch or trunk, the author of the noise. Some of our woodpeckers are very handsome, and as they cling to the trunk of a tree, with their large heads for an instant cocked knowingly on one side, and then driving the heavy bill deep into the wood, they make a pretty picture—so pretty, indeed, as to attract the notice of every taxidermist and collector of birds. Indeed, some of the handsomest species are to be seen in almost every group of specimens arranged for artistic effect. Not only in dead trees does the woodpecker seek his food, but living trees also, provided they are attacked by insects, are examined and collected over. The usefulness of the woodpecker in destroying insects is an accepted fact among agriculturists and others, and the belief is too useful in preserving birds to make it advisable to contradict it. Common as is the sound, and even the sight of the bird engaged in its labors, the appearance of the holes made by it is not so generally known. The woodpecker usually does his work at a considerable distance from the ground, out of easy reach of close observation, and the man who cuts down the tree and chops it into fire-wood pays very little attention, indeed, to what has happened before his axe came into use. There are occasional exceptions, however, and one of these is Mr. J. Turner Brakeley, of Bordentown, New Jersey, who spends a large portion of the year in the Pines of southern New Jersey, and for exercise chops his own fire-wood. I owe to him some extremely fine specimens of woodpecker work. One of these is the illustration on page 487. The original of the figure is a piece of white oak, thirteen inches in length and three inches in diameter, and it will be seen that it contains not less than four holes made by woodpeckers, probably by one bird and at one time. Each of the holes is nearly or quite an inch wide with the grain, and a trifle less across the grain, narrowing to the bottom of the holes; each of them reaches into the very centre of the tree and into an insect burrow. The appearance of these holes and their proportion to the trunk is very well shown in figure 71, while in figure 72 the same trunk is seen sawed in two, so as to show what the woodpeckers are after. The smudged look of the last illustration comes from a very small amount of oil dropped on the saw to make it work more easily. The oil penetrated the wood, and although it can hardly be seen in the specimen, it appears but too distinctly in the photograph.

It will be observed that through the centre there is a burrow made by an insect larva, or, really in that distance there were three larvæ, the middle one of which had made a channel four inches in length and less than one-eighth of an inch in diameter. The point at which the woodpecker reached the burrow is marked in each case by a black cross, and it will be noticed that in order to reach the larva occupying the central position, and which had made the four-inch burrow, he was compelled to make two attempts; one of the efforts reaching the burrow below the point at which the larva was working, so that all the labor was wasted. The larva for which all this work was done measured about three-quarters of an inch in length, with a diameter of, perhaps, one-sixteenth of an inch, and would scarcely serve to make more than a small mouthful for even the smallest woodpecker. At the time these holes were made in the trunk, the tree was still living, and, apparently, in a fairly flourishing condition, and I need not tell those who have had any experience in the matter that white oak is not the easiest wood to penetrate. It must have taken this bird at least half an hour of persistent work to make each hole, or at least an hour to secure this one larva, weighing only a few grains. It seems as if it would be almost impossible to gain from such a larva a fair return in food-value for the energy expended in getting at it, especially where it is necessary to make two efforts to obtain one mouthful. In the other burrows the bird was more successful, and gained the larva at the first attempt.

This suggests an interesting question: Which has really done the most injury to the tree, the larva that was making a small burrow in the centre, or the woodpecker which made two enormous holes extending from the outside to the extreme centre of the tree in order to get him? There is no question that the woodpecker destroyed a great deal more actual plant-tissue than the larva; there is no question, either, that he penetrated bark, sap-wood and heart, and, therefore, reached all the parts of the trunk that are most essential to the growth of the tree, causing in the one section which I have pictured here quite a considerable interruption in nourishment. On the other hand, the larva had confined its activities to the centre of the tree, had made a little longitudinal burrow only, in the very place where it would interfere least with growth, and therefore its injuries seem really trifling as compared with the injury done by the bird. I do not intend to answer my own question here, or even to give a definite opinion upon the subject, but simply call attention to the fact that it is at least open to argument whether or not the woodpecker is in all cases quite so beneficial a bird as he had been accounted. A question that has been often asked me is, How do these birds know just what trees are infested, and just where the larvæ are to be found? To one who has ob-

served the birds carefully, the answer is not difficult, for he will have noticed that the bird before beginning work makes a careful survey of the tree, hopping from place to place on the trunk, and listening intently. It is really by the sense of hearing, and by this only, that the insect larvæ are located, and this does not even require a very well-developed sense of hearing, because insect larvæ burrowing in wood make a noise quite perceptible to the human ear at some little distance if the surroundings are quiet. The bird is, therefore, able to locate a burrowing larva with very great accuracy, and it is rarely, indeed, that it becomes necessary to make more than one hole to get at it.

Rutgers College. *John B. Smith.*

New or Little-known Plants.

Fraxinus rhyncophylla.

THIS fine Ash-tree, which is a native of northern China and the adjacent parts of Mongolia, where it was discovered by the Abbé David, is distinguished from other Ash-trees by its winter buds, which are globose, half an inch in diameter, with broad scales covered with a coat of thick rufous tomentum. The outer scales, which are smaller than the others, do not, as is the case with most Ash-trees, cover the bud which is enclosed by the second pair of scales; and on the terminal bud these outer scales are narrowed into thickened reflexed tips, which stand out from it like ears. These great buds, which are collected at the ends of branches, give these a peculiar aspect in winter and render it easy at that season to distinguish this species from other Ash-trees (see page 485).

Fraxinus rhyncophylla* is a vigorous tree, with stout pale orange-colored glabrous branchlets, which are marked by occasional small darker-colored lenticels. The leaves, which are seven or eight inches long, are composed of five leaflets; these are oval or obovate, gradually narrowed at the apex into short or elongated points, wedge-shaped or rounded at the base, remotely and obscurely crenulate-serrate above the middle, thick and firm, dark green and somewhat lustrous on the upper surface, paler on the lower, and glabrous, with the exception of a fringe of pale hairs along the lower ends of the lower side of the midribs and on the petiolules. The terminal leaflet is three or four inches long and an inch and a half to two inches and a half wide, and is borne on a petiolule nearly an inch in length; the lateral leaflets are smaller and shorter-stalked, those of the lower pair being not more than half the size of those of the upper pair. The flowers are produced in rather compact panicles two or three inches long and broad, and are sometimes sterile by the abortion of the ovary and sometimes perfect, the two kinds being mixed together in the same cluster. The keys are narrow, about an inch and a half long, contracted at the apex, which is mostly acute or is sometimes rounded or slightly emarginate.

In the Arnold Arboretum Fraxinus rhyncophylla was raised from seed sent in 1881 from Pekin by Dr. Bretschneider, who speaks of it as a large tree. It is one of the hardiest and most vigorous Ash-trees in the collection; it grows rapidly and promises to attain a large size. During the last ten years the trees have flowered and produced fertile fruit.

In the United States Fraxinus rhyncophylla will not, perhaps, be more valuable as an ornamental tree than some of our native species, but the trees of China are still so imperfectly known that the introduction and successful cultivation of any of them in arboreta is important and interesting, as it is hopeless to try to know trees even superficially except by the study of living individuals.

C. S. S.

* *Fraxinus rhyncophylla*, Hance, *Jour. Bot.*, vii., 164 (1869).—Franchet, *Pl. David*, 1, 203, t. 17; *Mém. Soc. Sc. Nat. Chérbourg*, xxiv. 236.
Fraxinus Chinensis, var. rhyncophylla, Forbes & Hemsley, *Jour. Linn. Soc.*, xxvi., 86 (1889).

Hance describes the branches as obtusely quadrangular, while they are terete in our cultivated plants, which do not show any trace of the thick clusters of rufous hairs which he describes at the end of the branchlets and the insertion of the leaves and panicles, although such tufts of hairs are very conspicuous at the base of the young leaflets of *Fraxinus Mandshurica*. The figure in the *Plantæ Davidianæ* represents very well our plant, even to the buds, although these are not described.

From *Fraxinus Chinensis* of middle China, to which this species has sometimes been referred as a variety, it differs in the smaller number of leaflets, which in that species are narrower and more sharply and conspicuously toothed. The winter buds I have not seen.

Foreign Correspondence.

London Letter.

Bulbophyllum Ericssoni.—This, which is described by Dr. F. Kranzlin as "by far the most striking new Orchid received for a long time past," has lately been introduced by Messrs. F. Sander & Co. It has long creeping rhizomes, slender, erect pseudo-bulbs four inches long, each bearing a leaf "much resembling a medium-sized Stanhopea." The flower-scape is slender, with the flowers arranged in an umbel forming a circle, in this instance a large one, each flower measuring eight inches in diameter. "Imagine a group of from nine to twelve flowers of a large Chimœroid Masdevallia, and you will get an idea of this Bulbophyllum." The dorsal sepal is lanceolate, the lateral sepals oblong, with long twisted tails; the petals are shorter than the sepals tailed like them, and the lip is heart-shaped, of a spongy texture at the disk. The color of the flowers is yellowish-white, heavily spotted with dark brown, the tip being red. I have seen dried flowers of this plant, and they bore all the characters of a large-flowered, handsome Orchid.

Cirrhopetalum ornatissimum.—This is a beautiful little Indian Orchid, second only in size and interest to the new C. Collettii, to which it is closely allied. The former was introduced from Sikkim in 1882, when it was named by Reichenbach. It first flowered at Kew in 1887, and a picture of it was published in the *Botanical Magazine*, t. 7229. A plant of it was exhibited in flower by Sir Trevor Lawrence at the last meeting of the Royal Horticultural Society, who awarded it a first-class certificate. It has four-angled pseudo-bulbs springing from long creeping rhizomes, a leathery leaf four to six inches long, and a graceful scape eight to twelve inches long bearing an umbel of flowers, each four inches long, including the tails of the broad, curiously twisted sepals, which are yellow, lined with dots of purple; the short petals are each tipped with a brush of red paleæ; the labellum is small, tongue-like and colored purple-black. Cirrhopetalums are finding general favor with English cultivators, being easy to grow in a stove, free-flowering and exceptionally interesting in flower-structure.

Paphinia grandiflora, generally known as P. grandis, is the largest-flowered and handsomest of a small genus of Orchids, closely allied to Lycaste; indeed, it is included in that genus by Bentham & Hooker. Although introduced from Brazil and flowered in England ten years ago, this species has remained rare until recently, when Messrs. Linden, of Brussels, introduced it in quantity and sent it in flower to the meeting of the Royal Horticultural Society last week. Its flowers are six inches in diameter, the segments being ovate-lanceolate and colored yellow, with blotches and bands of deep brown-purple; the lip is narrow, fleshy and crowned with a tuft of whitish shaggy hairs. The size of the flower is out of all proportion to the size of the plant, which is scarcely a foot high and has egg-shaped pseudo-bulbs, bearing each one or two thin lanceolate green leaves. Paphinias are as refractory as Phalænopsis, and are, therefore, plants only for the patient and watchful cultivator possessed of a moist house. They require a decided dry rest after growth.

Cattleya Alexandræ.—This is undoubtedly a distinct species of Cattleya, and while some of the forms of it are dull and unattractive in color, others possess all the qualities of a first-rate garden Orchid. I have lately seen a number of plants of it in flower in the Brussels establishment of

Messrs. Linden, who introduced and distributed it last year, when it was described by Mr. Rolfe. Messrs. Linden have a great many plants of it, and when seeing them in quantity one is struck by the peculiar habit of growth and form and texture of leaf which characterize this species. Another extraordinary character is that of the brittleness of the pseudo-bulbs, which snap off as clean and easily almost as carrots. The species is, of course, allied to C. Leopoldii, but in the length of the flower-spike, two feet or more, and the wavy segments, their shining yellow-brown color and the rich magenta or rose-purple of the lip, there are good distinguishing characters. Plenty of water and sunlight during the growing season are evidently required by this plant. It is, I believe, Brazilian.

HABENARIA CARNEA.—You published (vol. iv., p. 475) a photograph of this plant taken from a specimen flowered at Kew, whither it had been sent the year previous from Penang, where it is a native. Since then several importations of it have been sold in London, and it is now a favorite with Orchid fanciers generally. Its variegated

Fig. 70.—Fraxinus rhyncophylla—See page 484.

leaves and erect scape of pale flesh-colored flowers, as large as those of Calanthe Veitchii, are very ornamental. Strong plants produce scapes fifteen inches high, bearing from six to ten flowers.

Cynorchis grandiflora.—This is a beautiful little ground Orchid from Madagascar, which promises to do well under cultivation. It flowered at Kew last year, and it is now in flower again, the scape being a foot high, with a flower two inches across, of a rich crimson color, the lip being large and flat, curiously lobed. Tropical terrestrial Orchids are, as a rule, unsatisfactory, but there is some hope that this new introduction from Madagascar will prove an exception.

Richardia Rehmanni.—Another new "Calla," this time a rosy flowered one, is announced by a Dutch nurseryman. Unless I am much mistaken, this is no other than R. Rehmanni, described by Engler in 1883, introduced to the Cambridge Botanical Garden in 1888, and recently sent to Kew from Natal as "a pink-flowered Arum." It flowered at Cambridge, and Mr. Lynch, the Curator, stated that although he had received it under the name of R. Æthiopica, var. rosea, the spathe produced with him had but a very slight tint of rose. The chief characteristic of R. Rehmanni is its long lanceolate, not sagittate, leaf-blade, which measures about a foot in length. The spathe may be described as that of a small R. Æthiopica, being about four inches long. The spathes produced in Holland are described as white, tinted with rose. It is evident, from the fact that this plant has been sent from south Africa by three different collectors, all describing it as rose-colored, that there is more color in it in Africa than it has revealed here so far.

Stapelia gigantea.—This truly wonderful species is now flowering freely in a stove at Kew, some of the star-shaped flowers measuring a foot in diameter. While it may be taken, as a general rule, that Stapelias prefer a dry atmosphere with plenty of sunlight and warmth, there are exceptions, and S. gigantea is one of them. Until this plant was placed in a moist stove, along with Palms, Aroids, etc., where it got shade in bright weather and plenty of water at all times, except for a few weeks in midwinter, it never flowered. There is something fascinating about the flowers of Stapelias, dull though they are in color, as a rule, and disagreeable, too, in odor, but when these flowers are a foot across, tawny-red in color, hairy and not too disagreeable in odor, they are worth a place in every stove collection. S. gigantea is as interesting in its way as Aristolochia gigas Sturtevantii or Victoria regia.

Begonia Gloire de Lorraine.—This is a hybrid between B. Socotrana and B. Dregii, the latter a Cape species in the way of B. Caffra and B. Natalensis, with a tuberous rootstock, annual stems, bearing soft green leaves and numerous bunches of white flowers. The hybrid was raised by Monsieur Lemoine, of Nancy, and exhibited in flower at the Paris Exhibition. It has been flowering at Kew for some time, and last week a few well-flowered examples of it were exhibited from the garden of L. de Rothschild, Esq. It is dwarf, rarely exceeding a foot in height, with numerous short branches, which are literally smothered with bright rose-pink flowers, which last a long time, a character peculiar to B. Socotrana and all its progeny. This is the seventh distinct hybrid of which B. Socotrana is one of the parents, and every one of the seven is worth a place in all good gardens. They flower very freely, usually in late autumn or winter, and their flowers are always pretty in color and last a long time.

Kniphofia citrina.—This is a new species described in the *Gardeners' Chronicle* this week by Mr. Baker from a plant flowered by Herr Max Leichtlin, of Baden-Baden, who introduced it from the mountains north of Grahamstown. It is chiefly interesting in having pale yellow flowers, in other respects being not unlike K. Macowani. Herr Max Leichtlin says it is hardy and flowers in October. I have lately called the attention of hybridizers and growers of hardy plants to the varied, plastic and promising material of the genus Kniphofia. The species cross freely, and the seedlings are not long ere they flower. Except in the warmer parts of England, many of them are not absolutely hardy, but there are many parts of the United States where Kniphofias would grow like Thistles, and in such places cross-breeding, with a view to improving the constitution of the genus generally as well as obtaining more variety of color, might be undertaken with advantage and ultimate profit.

Halesia v. Mohria (page 433).—If Mr. Britton's dates are correct, it is difficult to understand why he proposes to substitute his new name Mohria for the old Halesia. The question is, cannot a name once misapplied be used again? To put the matter plainly, I create a new genus, Brittonia, in compliment to Mr. Britton, but Sir Joseph Hooker points out that my genus is a bad one and cannot stand. Then comes Professor Sargent with the desire to name a genus in compliment to Mr. Britton; is he to be precluded from doing so because of my bad attempt? If not, then Halesia must stand, but if by the principles of nomenclature adopted by American botanists he cannot, then I am afraid practical men will say so much the worse for the principles. The devotees of botany and its laws ought surely to show some appreciation of and sympathy with the requirements of horticulture. It is bad enough when a well-established plant-name has to give way for good reasons, but do please let there always be very good reasons for the change. I can assure Mr. Britton that he will have to support his change of the name Halesia with better arguments than those given in Garden and Forest. Phonetics do not, of course, count in these matters, otherwise it might be urged that as we have already Moræa (Irid) and Moorea (Orchid), a third name having exactly the same sound might as well be avoided.

London. *W. Watson.*

[Most of the working botanists of the United States have conformed to, and are governed by, the rules of nomenclature adopted by the Botanical Club of the American Association for the Advancement of Science, at the meeting held in Rochester, New York, in August, 1892. The fourth of these rules provides "that the publication of a generic name or a binomial invalidates the use of the same name for any subsequently published genus or species respectively" (see *Bull. Torrey Bot. Club*, xix., 290). According to this rule, a name once misapplied, provided it has been published, cannot be used again. Its enforcement necessitates the change of some of the best-established and most familiar plant-names, like Halesia, one of the few North American trees which, up to this time, have escaped a heavy burden of synonyms. However much the enforcement of such a rule is to be regretted from certain points of view, from others it is really advantageous, and, so far as America is concerned, it now appears inevitable.—Ed.]

Cultural Department.

Diseases of Raspberries and Blackberries.

THE red rust is comparatively well understood since the Department of Agriculture has investigated it. This rust has a perennial mycelium which lives over winter in the plant and develops with the young canes the following spring. In the summer of 1892 a single Blackberry-bush was found on the station-grounds affected with the disease. On June 23d all the canes were cut close to the ground, and new ones, apparently healthy, sprang up. This spring, however, at the usual season, the leaves and twigs were covered with the well-known orange-red color, showing that the fungus had been continuing its growth all the time within the tissues of the plant, and was ready to develop its spores at the proper time. This one fact in the life-history of the fungus being known, it is easy to see that a plant once attacked is doomed, and that the only remedy is to dig it up and burn it. Spraying may prevent the germination of some of the spores which it scatters abroad, but it is far cheaper to begin at the source and prevent their production in the first place by rooting out and burning every diseased plant the moment it is discovered. It may be necessary to look after the Wild Raspberry, Blackberry and Dewberry plants in the vicinity, for, if they are numerous and badly affected, the dis-

ease may spread from them faster than from any other source.

The Anthracnose, Glæosporium venetum, is another serious disease. The hyphæ of this fungus do not extend from the old to the new canes, as in the red rust, and if all the portions could be cut away this would be an effective remedy. The attacks of the fungus, however, are so indiscriminate and general that in most cases the remedy is impracticable. It is hard to counteract it by spraying because of the difficulty in protecting all portions of the cane with a coating of the material. Probably the Bordeaux mixture will be found effective if the spraying is begun with young plantations and the treatment continued throughout the year.

Another disease, which is probably more common than is generally known, manifests itself by large knotty swellings of the roots. Affected plants lose their vigor and productiveness, and with our present knowledge we can only say that it will be prudent to avoid setting out plants which show any such swollen roots. The cause of these swellings is yet a mystery.

Cornell University. *Fred. W. Card.*

Cactus and Show Dahlias.

FOR a full century the florists of Europe, working upon the single species of Dahlia brought within their reach in 1789, labored in its improvement, having, apparently, a single ideal toward which they strove. The result, as shown in the double Dahlia of to-day, has crowned their persistence with a rich reward, for, as far as perfection of form and beauty of coloring go, the best show Dahlias are worthy of the high admiration they nearly always excite. I admire the single varieties greatly, but there is one kind of beauty in the single and another in the show Dahlias, and the two types are so unlike that comparison between them is out of place.

During the development of the show and fancy classes as we have them now, all change that was not in the line desired was regarded with disfavor, and many flowers, very beautiful in themselves, were thrown away because they made no advance toward the florists' ideal. This rejection would, no doubt, have been persisted in unceasingly had it not been for the introduction, about twenty-five years ago, of a variety so novel and

Fig. 71.—Stem of White Oak sapling, showing work of a woodpecker.—See page 483.

beautiful that it at once found favor with all flower-lovers, and became the starting-point of a new race. This was Dahlia Juarezi, named in honor of the President of Mexico, Benito Juarez. Some of its admirers saw in its long, pointed and twisted petals a resemblance to the flowers of a Cactus, and from that time flowers of this shape have been called Cac-

Fig. 72.—The same stem sawed through the centre.—See page 483.

tus Dahlias. After one flower, not shaped according to the florists' rules, was acknowledged to be worthy of cultivation, others were introduced instead of being thrown away as formerly. For some years all these additions were included in the Cactus class, but so numerous did they become as to suggest that the carefully perfected blooms of the show and fancy types would be lost among the multitudes of new flowers whose only recommendation was their irregularity.

For the last five or six years, however, the National Dahlia Society of England has offered prizes for Cactus as well as for the other classes of Dahlias, and specified from year to year what varieties were eligible for the competition. This action has purged the lists of many undesirable kinds and stimulated the production of true Cactus forms having the characteristic form of Juarezi. Cactus Dahlias are produced, from year to year, as numerously as those of any other class, and the prices are fully as high. Half a guinea per plant is the conventional price for the year of introduction, and one Cactus form was offered this year at fifteen shillings.

No more beautiful variety than Juarezi has yet been produced, but it has the two faults of being very late and shy blooming and of producing its flowers low, among the foliage; both of these faults still appear, as far as I have observed, in all kinds of the true Cactus form, but in a much lessened degree. Honoria, one of the oldest in this class, is still one of the best; indeed, I consider it the very best of its color, which is pale yellow. The newer Robert Maher is of less pleasing shape and a shyer bloomer, though somewhat stronger and more decided in color. Mrs. Hawkins, another old variety, is excellent at times, and again is not at all satisfactory; when the pink which tinges its yellow ground is too deep, as often happens, the result is a blending into a dirty light purple, such as yellow Gladioli frequently show. Of crimsons of various shades there are many, some of them remarkably fine, and it seems to me that the deeper the shade the better the form. It is not necessary to give a long list of them, but the purchaser of Kynerith, Robert Cannell or Duke of Clarence will probably be pleased with his bargain. Of buff flowers of various shades there are several; Cannell's Favorite, which ought to be one of the very best of them, is, with me, not full enough to rank as such. Pure white flowers of the Cactus class are wholly wanting, unless Mrs. Peard shall prove to be of the right shape. Of this I have some doubt, however, for I re-

member that Henry Patrick and Harry Freeman were introduced with flourish of trumpets, yet proved to be, the first a white show Dahlia of very poor shape, such as were common forty years ago, and the other, though a very good decorative kind, entirely without the long twisted petals and loose arrangement which make the true Cactus forms as distinct and attractive as the Japanese Chrysanthemums.

Of the so-called decorative kinds, little need be said; for the most part they ought to be allowed to die out, yet a few of them are really excellent. Lord Lyndhurst, a variety I have had for many years, stands highest in my esteem. It is the only kind, I believe, which gives first-class flowers in July. Their color reminds me of George Herbert's "rose, whose hue, angry and brave, bids the rash gazer wipe his eye," yet there is nothing harsh or crude in its rich, glowing scarlet. Next to this I should place Zulu, a very free-blooming kind, whose flowers are almost black, with here and there a gleam of lighter crimson. Harry Freeman, the white already mentioned, is well worthy of cultivation, and so is Mrs. G. Reid, a light pink or rose variety, with curiously serrated petals.

Canton, Mass. *W. E. Endicott.*

Lachenalias.—As the flowering season of these pretty Cape bulbs comes round each year, it is always a matter of surprise that the Lachenalias are so little known and cultivated. For the window-garden, or, indeed, for any purpose where other bulbs are grown in pots, these are in every way satisfactory, the more so that they can be grown year after year and increase rapidly with ordinary care. The kinds that are best known in gardens are those of the larger-growing species; many of the smaller-growing kinds are, it is true, more curious than beautiful, but it is a mistake to apply this phrase to the whole genus, as is done in one work on Bulbs recently issued. L. pendula is with us the largest and earliest to bloom, and is now, with cool treatment, in full bloom. The scapes of flowers resemble the Roman Hyacinth somewhat, but the flowers are bright red, yellow and green-tipped; the foliage of L. pendula is broad and green, while in L. tricolor it is distinctly spotted with round black spots, as is also L. Nelsoni. This last is the brightest-colored of all, the flowers being of the clearest golden-yellow, with scarlet margins. Lachenalias need a long period of rest after flowering, and as soon as the foliage dies down we shake them out of the soil and sort the bulbs in sizes and store them away in dry sand until August. The largest are then potted in six-inch pots or eight-inch pans, and the smaller ones are put in boxes to grow on to the flowering size. All are then placed in cold-frames until cold weather comes, when they are brought into the cool greenhouse. The treatment usually given to Freesias will suit the Lachenalias admirably, both being natives of south Africa. It is not too late to procure bulbs now for later spring blooming.

South Lancaster, Mass. *E. O. O.*

Nerine roseo-crispa.—This is a cross between N. undulata and N. flexuosa, and a real gem. The Nerines are bulbous plants from the Cape, flowering in autumn or winter, and this one has small bulbs an inch in diameter, with narrow strap-shaped leaves of soft texture. The flowers are borne in umbels on a six-inch scape. Individually they have narrow reflexed petals, are about an inch in diameter and of a beautiful soft rosy tint. They are very dainty in form, and retain their beauty undimmed for about a fortnight.

Elizabeth, N. J. *J. N. G.*

Correspondence.

The Boston Public Garden.

To the Editor of Garden and Forest:

Sir,—Last winter visitors to the Public Garden in Boston found it decorated with the tops of Pine, Hemlock and Cedar trees, cut in the country and stuck into the ground, where they were allowed to remain until they were nearly bare of leaves. During the past summer a number of beds in the Garden have been filled with half-hardy evergreen plants and tropical plants mixed together. The tropical plants have now been taken out of these beds and replaced with Hemlock-boughs and branches of Oaks more or less covered with scarlet leaves, which at the end of a few days have, of course, turned brown and are beginning to fall. This, on the whole, seems to be the most feeble and childish manifestation which the bedding system has yet developed; and in Boston it has not even the merit of being well done, as it is in Chicago and some other western cities. And yet, if one may judge from the expressions of admiration which constantly appear in the Boston papers about the beauty of the Public Garden, it is fair to suppose that Bostonians esteem this as the most artistic thing in ornamental gardening which has ever been achieved; and year after year they go on cheerfully paying for this dime-museum chromo-show two or three times what it would cost to maintain a really beautiful garden.

Boston. *R.*

[Anything that is a sham is bad art, and the attempt to produce effects in a garden with the tops or branches of trees stuck in the ground is a sham. This new style of decoration, however, is only another expression of the methods already adopted for the adornment of the Public Garden in Boston, in which it is not unusual to see thousands of plants like Hyacinths and Roses, previously forced into bloom in frames or greenhouses, plunged in the beds where at best they can only remain in perfection for a few days and where their beauty is often spoilt at the end of a few hours. This is sham gardening and bad art; and, moreover, it is wasteful and extravagant. Large sums of money are expended every year by the city of Boston in providing material of this sort and in housing the tender plants which are used profusely in the Garden; and it is only a few months ago that the Mayor approved an appropriation of $100,000, to be expended in building new city greenhouses to supply bedding plants for the decoration of this Garden and the different city squares.

Bedding, that is the massing in summer of large numbers of tender plants, can be properly used in most large public gardens, and without it many gardens would lack a useful and attractive feature; but such a use of tender plants should be limited to certain appropriate parts of a garden; and if a large sum of money is expended every year in Boston for this sort of decoration, it should at least be as good of its kind as it is possible to make it. Whether the best results in bedding have been obtained in Boston, any Bostonian who has visited this summer Washington or Lincoln Parks, in Chicago, can judge.

It is a question, moreover, whether a garden is wisely managed in which a great sum of money is expended every year in producing effects which disappear with the first frost, while the trees are neglected, the lawns are full of weeds, and the walks remain out of repair, as is the case with the Public Garden in Boston. Nor does it seem wise or the part of an economical policy, that Boston, which does not hesitate to expend $100,000 for new greenhouses, besides thousands of dollars every year in planting and tending its flower-beds, should allow the trees in that Garden and on the Common to fall into a condition which gives every thoughtful and intelligent person interested in the beauty of the city ground for serious anxiety.—Ed.]

Chrysanthemums for Exhibition.

To the Editor of Garden and Forest:

Sir,—While the Chrysanthemum shows are closing, it is well to review the season and make account of any new or old flowers or new features which have appeared in special prominence. The larger shows through the country seem to have been of quite uniform excellence, with a tendency toward better-finished flowers, and, perhaps, fewer good specimen plants. This is a tendency which is a natural result of the entrance of the cut-flower grower into the field within the last four or five years. The earlier Chrysanthemum exhibits were made entirely by plant-dealers and professional gardeners with the help of an occasional amateur. Since the advent of the cut-flower grower, with his series of plants of one variety, grown on the high-pressure, one-bloom system, from which to cut, the old class of exhibitors, if they appear at all, are quite secondary in the race for cups. The evidence of an unlimited supply of a few kinds only was to be noted in the competitions where large numbers of varieties were shown together, as, for example, in the classes for forty-eight blooms of different varieties, and even in the twenty-four-bloom classes, it was always evident that there had been a struggle to fill out the quota. A full set of well-finished flowers in perfect character was the rare exception. With such a wealth of varieties in cultivation, this poverty of representation calls for comment.

The large vase competitions for flowers of one variety, inau-

gurated three years ago in Madison Square Garden, seem to have spread to all parts of the country, and, no doubt, are one of the most satisfactory features of our exhibitions under present conditions. They are attractive to the general public, while they present the best chances for competition among the principal growers, as they require at most only a dozen varieties, and these in masses of from six to twenty-four, quantities in which there are many to compete. It seems almost incredible even to one perfectly familiar with the vigorous growing capacity of the Chrysanthemum that such flowers as are exhibited in such abundance should be worked out of June cuttings. The flowers in the large vases at the New York Show this year were noticeably a better average than before exhibited—good foliage, sturdy stems, and well-colored and firm well-finished flowers. Here, and in other cities, as pictures show, one could criticise only the depth of flower, the point which demonstrates the best skill of the grower. That we do not get flowers of the greatest possible depth is probably owing to the quick system of culture which now obtains.

As usual in New York of late, the single blooms in variety were divided between the boards and the jars. It is difficult to see the utility or beauty of the latter devices, as the æsthetic side is a minor consideration in exhibiting cut flowers of Chrysanthemum, except when massed for decoration, as in large vases. If the reader will examine a specimen exhibition bloom, even with a long stem and perfect foliage, he must conclude that, however perfect it may be as a work of nature and art, it is of no special use by itself. Add two more and you have a fine decoration, which is made a superb one with half a dozen or a dozen of the same variety. Now, while it is all proper when one asks a premium for a new variety, to compel him to show stems and foliage, I do not see why the same conditions should be annexed to a show of blooms of varieties of which every one knows the habit. It is no great trick to grow good foliage under glass, and it is often done only too well, even to rankness. It seems to me that when blooms are to be exhibited for prizes, the exhibitor should be allowed to show them as they will show best for points, and this is on boards. Of course, these are judged only for the quality of the flower, which is the material question. I have seen scales of points for judging Chrysanthemums where a foliage counted as much as depth, and this does not seem a premium on skill. Some varieties do best on crown-buds. What chance would perfect blooms of these have under the foliage test?

Furthermore, as a mere matter of taste, I decline to admit that a lot of short-stemmed sample flowers, wobbling in glasses, has any advantage in beauty over specimens well set on boards. It will be said, perhaps, that we exhibit Roses Carnations, etc., with their own foliage, and why not Chrysanthemums? The only difference is that we do not exhibit the former as single flowers, and even should we so show Roses, the preponderance of flower over foliage is not so very great as to render the latter insignificant in comparison as is the case with the Chrysanthemum. Perhaps some one may say that these artificial conditions give a quite incorrect impression of the Chrysanthemum as a flower and a flowering plant. Well, I do not know where any one could gain a more incorrect idea of the Chrysanthemum than at a Chrysanthemum show. The whole thing is out of perspective, one-sided and mostly artificial. This must be so from the nature of the case, as only the flowers grown in glass houses enter into competition, and within this valuable space only special kinds are grown and shown, leaving hundreds of beautiful forms quite unrepresented and unknown. This is one defect of a Chrysanthemum show which it is scarcely possible to remedy, and will always detract from its educational value. Those who have grown the Chrysanthemum in many varieties under less luxurious treatment know that this wonderful plant has phases missed altogether by those who know it only under artificial conditions.

Much as the shows and competitions are enjoyed, none of the flowers please me so much as those which are still swaying on their own stems in the crisp November air in sheltered places. In the open they have a free and joyous air all in character with their development as children of the autumn.

Elizabeth, N. J. *J. N. Gerard.*

Exhibitions.

The Chicago Chrysanthemum Show.

THE World's Fair Chrysanthemum Show was held in the new Art Building on the lake-front, four large rooms and two corridors being used for the exhibits, while the entrance hall was decorated with the plants grown by the World's Fair Department of Floriculture. Divided up in this way, the magnitude of the show could not be realized, and the flowers were less impressive than if they had been massed in one large room. But it is the best and the biggest flower-show yet held in the west, and the general opinion is that it compares favorably in point of size and of the quality of cut flowers with the eastern exhibitions. It is weak in specimen plants, only very ordinary ones being shown.

As shown here, The Queen takes first rank among the white varieties, exhibited for the first time in 1892, taking more premiums than any other Chrysanthemum, but Niveus shows up well, and W. G. Newett is even better than last year. In pinks, W. N. Rudd is as good as it was last year, and so is Princess. President Smith, shown by Sievers, of California, in 1892, and by Peter Henderson & Co. in 1893, under the name of Good Gracious, proves a fine exhibition bloom, but is not spoken of highly as a commercial flower. Dr. John H. Taylor is better than in 1892. Judge Hoitt, which marked a great improvement in the Anemone section, is shown in excellent form.

Of the yellow varieties, Mrs. Craig Lippincott leads, and Golden Wedding, although reported as weak in many locations, has sustained its high standard of last year. The crimson Joey Hill is immense in size and of good form. Among bronze varieties, Redondo leads, and Robert McInnes is almost as good. Among the European varieties of 1892, L'Enfant des Deux Mondes, a cream-white flower of the Mrs. Hardy type, and Charles Davis both attract much attention, and Robert Owen is excellent.

The interest culminated in "Medal Day," when the seedlings were shown—all the premiums awarded on November 7th being Columbian medals and diplomas, except the sweepstake prize of one hundred dollars for the "best seedling not yet disseminated." This was won by Challenge, grown by E. G. Hill, Richmond, Indiana, a chrome-yellow flower of enormous depth and fullness—a compact mass of incurved petals. It is said to keep indefinitely, and seems to have all the requisites of the standard commercial Chrysanthemum. A special award was given in the same class to a white variety from J. H. Sievers, of California. The specimens sent had been cut at least six days when put on exhibition, but the variety seems to have great merit, being a perfect ball of curling, cream-white petals, and when fresh it must be as beautiful as it is unusual. Eugène Dailledouze, also grown by Mr. Hill, took the premium for the best yellow, and Major Bonnaffon, grown by F. Dorner & Sons, Lafayette, Indiana, received a special award in the same class. Eugène Dailledouze is a rich golden-yellow flower, the outside and inside of its broad, deeply hollowed, sharply incurved petals being of the same vivid and beautiful golden hue. It has kept as well as any flower on the tables, and is said to be as handsome when fully open as in its earlier stage, there being ample fullness to keep the centre good during the life of the flower. Major Bonnaffon is nearly globular in shape, similar to Challenge, but of finer texture, and not quite so firm and full, a lovely straw-color, with more finish in form and purity of color than either of the other two yellow prize-winners. Marie Louise, grown by A. Witterstaeder, Sedansville, Ohio, took the premium for the best white; Mrs. Potter Palmer, an open incurved variety of pleasing shade, from F. S. Waltz, Cincinnati, Ohio, for the best pink; Brigand, entered by Thomas Spaulding, Orange, New Jersey, for the best crimson; and an unnamed variety, grown by Vaughan, Chicago, for the best bronze. Inter-Ocean, an exquisite faint pink flower of pearly texture of the Viviand Morel type, grown by Hill, took the premium for the best of "any other color," and a special award was given in the same class to Pitcher & Manda, a flower of unusual shape and remarkable coloring, grown by the firm whose name it bears. In shape and size it is like a medium-sized double annual Sunflower, but of finer texture, and it is evenly shaded, from straw-color in the centre to white at the border. It is a great novelty and attracted much attention, but has weak stems. A medal was awarded to Charles Davis, the European variety sometimes spoken of as the Golden Viviand Morel, as being of special merit.

Four other seedlings, all grown by Mr. Hill, that are highly spoken of, are Mrs. H. W. Higginbotham, a broad-petaled, open incurved pink flower, nine inches in diameter, said to be very desirable, but past its prime when the show opened. Louise D. Black, which is distinct in form, being almost a perfect ball, but of a dull color, somewhat on the order of Autumn Glow; Abraham Lincoln, a well-built Chrysanthemum of distinct and unusual type, and in color cream-white, suffused with lemon, its marked characteristic being the odd shape of its florets, each one being almost a fac-simile in size and shape of a Salvia-blossom; and Bronze Giant, a very deep bronze incurved globular flower, said to be of great promise.

Chicago, Ill. *Fanny Copley Seavey.*

Notes.

Three of the largest Japanese Maples in the country are now standing in Prospect Park, Brooklyn. They are said to be among the first of these trees sent here by the late Thomas Hogg, and are now, perhaps, thirty-five feet high, with a corresponding trunk circumference. Although they are beginning to be crowded they are fine trees, and at this season of the year they are especially beautiful, because their foliage is just taking on its best color when all our native trees are already stripped of their leaves. This late retention of foliage is a peculiarity of east Asian plants, and it should be taken advantage of when planting for autumn effect. None of our native Scarlet Maples was ever brighter than these Japanese Maples are now in the last half of November, when the Scarlet Maples have been bare of their foliage for nearly a month.

Professor Beckwith, of the Delaware Experiment Station, writes in the *Rural New Yorker*, that the three dwarf Lima Beans — Henderson's, Burpee's and Thorburn's — planted alongside of each other, have all once more proved valuable acquisitions. Henderson's proved the most productive, but yielded the smallest beans, and the large beans are preferred by most persons. There seemed little difference in quality, however. The pods in Henderson's Lima do not fill out much, even when they are of full size, so that one is apt to allow them to get too old before beginning to use them. Burpee's Early Black Lima will probably not be generally liked on account of its color and the small size of the beans, but, like the Black Mexican Sweet Corn, its superior quality renders it desirable. Its vines do not grow as rank as some other kinds, but they bear an enormous crop.

Mr. George Stanton, of Summit Station, New York, who has been experimenting for some time with the cultivation of Ginseng, writes that he has lately taken up the roots from three small beds, each sixteen feet long by three feet wide, one of which had been planted five years ago, and two others four years ago, with small roots taken from the woods. After reserving, for replanting, 833 roots, which weighed together more than twenty pounds, all of them larger than any of those originally planted, he had remaining fifty-two pounds and fourteen ounces of clean-washed roots, which will make, when dried, about seventeen pounds, worth from $3.00 to $3.50 per pound. Meanwhile, Mr. Stanton has been selling seed from his plants to the amount of about $40. If operations of this kind could be carried forward on a large scale it looks as if the Ginseng industry had in it the promise of a good profit.

A German horticultural journal is responsible for this story about a bridal bouquet. A certain school-teacher in the town of Konitz had ordered a bouquet for his wedding-day, stipulating that it should not cost more than four marks (one dollar), but not designating what kind of flowers should be selected. It was in the autumn, when hot-house flowers were few and dear, so the florist composed it of white dahlias; but the bride and her family declaring that these flowers were unfit for the purpose, the school-teacher returned the bouquet to its maker and refused to pay for it. The florist then sued him, but the position of the schoolmaster was sustained in court, in accordance with the testimony of experts in matters of taste whom he had called in and who echoed the opinion of the bride. A similar result followed upon an appeal to a higher court, despite the testimony of experts now summoned by the florist, and the florist was ordered to pay the costs of the suit, amounting to three hundred marks.

Professor Troup writes that the Russian varieties of orchard fruits which have been tried during the last ten years in Indiana have proved successful in point of hardiness. The trees are nearly all good growers, and many of them are uncommonly good producers and they begin to yield while very young. The apples, however, are nearly all summer and autumn varieties, none of them having proved late-winter keepers. Those which are described as "late-winter" in Iowa ripen in Indiana in August. When crossed with our native varieties, however, they may prove of value. The Pear-trees seem very healthy, and none of them show a tendency to blight, but they have not been in bearing long enough to warrant positive judgment upon them. The variety known as Sapieganka produces small but very handsome pears, which, if picked at the proper time and ripened up, are of very good quality. The Russian cherries so far tested have not proved in any way superior to the old kinds in cultivation.

A late number of the *Gardeners' Magazine* contains a good picture of Zenobia (or, as it is usually known in American collections, Andromeda) speciosa, var. pulverulenta. Mr. Nicholson, who writes the note accompanying the portrait in the paper referred to, regrets that a plant which was so highly prized in English gardens during the early part of the century has been, along with many other equally interesting and beautiful shrubs, strangely neglected during recent years. It can hardly be more rare in English gardens than in those of America, although it is quite hardy as far north as New England, in spite of the fact that its natural home is along the borders of the ponds in the coast-country from Florida to North Carolina. The species is a low shrub never more than three or four feet high, and it has bright shining leaves, while the variety is rather smaller and, perhaps, a more beautiful plant, with bluish gray or nearly white leaves and a dense glaucous bloom. The flowers on both plants are of pure white, and are borne on long racemed fascicles on the naked branches of the preceding year. They are bell-shaped and rather larger than those of Lily-of-the-valley. The plant will thrive in any loamy soil where it is not too dry, but it does well in peaty soil. As it forces well it is remarkable that we so rarely see flowering specimens in pots at our early spring exhibitions.

Receipts of Delaware grapes are now ended and the season for Concords is drawing to a close, most of the shipments coming in trays and used by our foreign population for wine for home use. Catawbas continue to come by car-loads as late as February, when they are received in smaller quantities by express until spring. Black Ferreras, which are said to make a wine having good keeping qualities, are sold as low as four and five cents a pound after their costly journey from the Pacific. Other varieties of California grapes, included in twenty-five car-loads, sold in this city last week, are Muscats, Flame Tokays and Cornichons, the latter masquerading on the street-stands sometimes under the name of Black Malagas, and sometimes as New Cornish grapes. Some high-grade Almeria grapes of choicest quality, known as the Hilaro Rubi Rubi brand, were sold on their arrival last week at double the prices brought by any Spanish grapes this season, but this fruit promises to be both cheap and abundant for some time to come. The imports are largely in excess of those of last year, and one cargo of nearly 24,000 barrels, the largest ever exported from Almeria, reached New York this week. A few boxes of Coe's Late Red plums came direct from California last week, most of this fruit seen here now being from cold storage, as are also some George's Late and Salway peaches, for which there is but little call. Pomegranates, from Spain and from California, are fifty to sixty cents a dozen. Navel oranges, from Florida, bring the same low price, because of their unripe condition, and Tangerines are forty to sixty cents a dozen.

The Agricultural Experiment Station of the University of Illinois issued a bulletin last summer giving the details of a forest-tree plantation which was begun in the spring of 1871. About thirteen acres were planted, some of the ground being marshy, and some of the higher portions so poor that farm crops were no longer remunerative. The selection of varieties does not seem to have been the best, and, perhaps, with the experience gained, another plantation might be more intelligently cared for. Some of the trees, as, for example, the European Larch, on high ground, the Norway Spruce, the Sugar Maple, the White Maple and a few other trees, look well. The conclusions arrived at are that it is impossible for tree-plantations to be made profitable as farm-crops on land which is fit for wheat and corn. It is idle to talk of growing wood for fuel, except for home use on the farm, when bituminous coal can be had at present prices. In Illinois, lands which are well-timbered sell for a smaller price per acre than lands of the same quality that have been cleared, or than prairie lands of the same productiveness; that is, the value of the timber is less than the cost of clearing the land and bringing it under cultivation. The bulletin states, however, that the value of natural forests gives little information as to the worth of artificial plantations, which, if judiciously managed, may consist entirely of high-priced and useful material. There is one constant reason for uneasiness about this experiment, as there must be about every forest-tree plantation, that is, the real and imminent danger from fire. The areas which bear coniferous trees are liable to be burned over during any dry time, and in autumn, after the fall of the leaves, the part devoted to deciduous trees is quite unsafe. A burning wad from a gun, or the negligent use of fire by a tramp, may start a conflagration which will destroy in a few hours the products of years. There seems no hope for forest-planters except to take the risk of fire, and this risk may be classed among the items of obstacles and expenses.